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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,727	10/16/2003	Noriyuki Nishi	NY-KIT-360-US	4623

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EXAMINER	
WOLDEMARIAM, AKILILU K	
ART UNIT	PAPER NUMBER
2609	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,727	NISHI ET AL.	
	Examiner	Art Unit	
	Aklilu k. Woldemariam	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/16/2003; 01/22/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on October 16, 2003 was filed after the mailing date of the same date on October 16, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. The information disclosure statement (IDS) submitted on January 22, 2007 was filed after the mailing date of the same date on January 22, 2007. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 11-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al., hereinafter, Noguchi (U.S. Patent number 6, 856, 429 B1) in view of Yamashita et al., thereafter, Yamashita (U.S. Patent number 5,619,280) and further in view of Hibi et al., " Hibi", (U.S. Patent number 5,187,570).

Regarding Claim 11, Noguchi discloses an image processing method for correcting pixel values of each pixel (see column 1, line 28) constituting color image data by shifting, in a coordinate system, a mathematical correction function defining correction values for input values (see column 2, line 30), the method comprising the computer-implemented steps of.

Noguchi does not disclose determining a maximum value and a minimum value among correction values (b, g, r) of respective color components obtained for each pixel by using the correction function, calculating differences (Ab, bg, Ar) between the respective correction values of the respective color components and the minimum value, and calculating a difference (DR) between the maximum value and the minimum value; dividing the calculated differences (Ab, Ag, Ar)" between the respective correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components; determining, as an inappropriate pixel, any pixel having a correction value overflowing from a predetermined maximum output gradation value and setting the overflowing correction value to the predetermined maximum output gradation value and determining, as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value and setting the under flowing correction value to the predetermined minimum output gradation value.

However, Yamashita discloses determining a maximum value (see column 4, line 31) and a minimum value (see column 4, line 54) among correction values (b, g, r) of

respective color components obtained for each pixel by using the correction function, calculating differences (Ab, bg, Ar) between the respective correction values of the respective color components and the minimum value (see column 4, lines 27-28), and calculating a difference (DR) between said maximum value and said minimum value (see column 5, lines 9-12); dividing the calculated differences (Ab, Ag, Ar) between the respective correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components (see column 5, lines 9-12); determining, as an inappropriate pixel, any pixel having a correction value overflowing from a predetermined maximum output gradation value and setting the overflowing correction value to the predetermined maximum output gradation value (see column 15, lines 59-63) and determining, as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value (see column 15, lines 59-63) and setting the under flowing correction value to the predetermined minimum output gradation value (see column 15, lines 59-63).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Yamashita's] determining the maximum value and the minimum value in [Noguchi's] image color correction device in order to reduced memory capacity, [Yamashita's, column 1, lines 27].

Noguchi and Yamashita do not disclose controlling color balance adjustment so as to cause the correction values of the inappropriate pixel to agree with the respective color ratio thereof.

However, Hibi discloses controlling color balance adjustment (see column 1, line 16 and column 6, line 34) so as to cause the correction values of the inappropriate pixel to agree with the respective color ratio thereof.

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Hibi's] color balance adjustment in [Yamashita's and Noguchi's] image color correction device in order to produced high image quality, [Hibi's, column 3, line 6].

Regarding claim 12, Yamashita discloses the image processing method of claim 11, wherein the step of controlling utilizes sums of the minimum value and respective product values obtained by multiplying a differences between the maximum output gradation value and the minimum value (see column 12, lines 41-50) by the color ratios as the respective final pixel values if the correction value of at least one color component overflows from the maximum output gradation value (see column 12, lines 41-50).

Regarding claim 13, Yamashita discloses the image processing method of claim 11, wherein the step of controlling utilizes the product value obtained by multiplying the maximum value by its color ratio as its final pixel value (see column 12, lines 41-50), if the correction value of at least one color component underflows from the minimum output gradation value (see abstract, lines 19-20).

Regarding claim 14, Noguchi discloses an image processing apparatus for correcting pixel values of each pixel constituting color image data by shifting, in a coordinate system, a mathematical correction function defining correction values for respective input values (see column 2, line 30).

Noguchi does not disclose the apparatus comprising a color balance adjustment section for adjusting color balance of the corrected image data, the color balance adjustment section comprising a calculating section for determining a maximum value and a minimum value among correction values (b, g, r) of respective color components obtained for each pixel by using the correction function, calculating difference (Ab, Ag, At) between the respective correction values of the respective color components and the minimum value, calculating a difference (DR) between the maximum value and the minimum value, and dividing the calculated differences (Ab, Ag, Ar) between the correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components; a judging section for determining as an inappropriate pixel, any pixel having a correction value overflowing from a predetermined maximum output gradation value and setting the overflowing correction value to the predetermined maximum output gradation value, and determining as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value and setting the under flowing correction value to the predetermined minimum output gradation value; and a gradation value determining section for controlling color balance adjustment so as to

cause the correction values of the inappropriate pixel to agree with the respective color ratio thereof.

However, Hibi discloses the apparatus comprising a color balance adjustment section for adjusting color balance of the corrected image data, the color balance adjustment section (see column 1, line 16) and a gradation value determining section for controlling color balance adjustment so as to cause the correction values of the appropriate pixel to agree with said respective color ratio thereof (see column 1, line 16 and column 2, line 42).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Hibi's] color balance adjustment in [Noguchi's] image color correction device in order to produced high image quality, [Hibi's, column 3, line 6].

Noguchi and Hibi do not disclose a calculating section for determining a maximum value and a minimum value among correction values (b, g, r) of respective color components obtained for each pixel by using the correction function, calculating difference (Ab, Ag, At) between the respective correction values of the respective color components and the minimum value, calculating a difference (DR) between the Maximum value and said minimum value, and dividing said calculated differences (Ab, Ag, Ar) between the correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components; a judging section for determining as an inappropriate pixel, any pixel

having a correction value overflowing from a predetermined maximum output gradation value and setting the overflowing correction value to the predetermined maxirnum output gradation value, and determining as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value and setting the under flowing correction value to the predetermined minimum output gradation value; and a gradation value determining section for controlling color balance adjustment so as to cause the correction values of the inappropriate pixel to agree with the respective color ratio thereof.

However, Yamashita discloses a calculating section for determining a maximum value (see column 4, line 31) and a minimum value (see column 4, line 54) among correction values (b, g, r) of respective color components obtained for each pixel by using the correction function, calculating difference (Ab, Ag, At) between the respective correction values of the respective color components and the minimum value (see column 4, lines 27-28), calculating a difference (DR) between the maximum value and the minimum value (see column 5, lines 9-12) and dividing the calculated differences (Ab, Ag, Ar) between the correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components (see column 5, lines 9-12); a judging section for determining as an inappropriate pixel (see column 7, lines 25-30), any pixel having a correction value overflowing from a predetermined maximum output gradation value and setting the overflowing correction value to the predetermined maximum output gradation

value (see column 15, lines 59-63), and determining as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value (see column 15, lines 59-63) and setting the under flowing correction value to the predetermined minimum output gradation value (see column 15, lines 59-63).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Yamashita's] determining the maximum value and the minimum value in [Noguchi's and Hibi's] image color correction device in order to reduced memory capacity, [Yamashita's, column 1, lines 27].

Regarding claim 15, Noguchi discloses a computer-readable medium (see column 5, lines 21) comprising code for correcting pixel values of color image data (see abstract, line 16), the code comprising instructions.

Noguchi does not disclose determining a maximum value and a minimum value among correction values (b, g, r) of respective color components obtained for each pixel by using the correction function, calculating differences (Ab, Ag, Ar) between the respective correction values of the respective color components and the minimum value, and calculating a difference (DR) between the maximum value and the minimum value; dividing the calculated differences (Ab, Ag, Ar) between the respective correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components; determining, as an inappropriate pixel, any pixel having a correction value overflowing from a

predetermined maximum output gradation value and setting the overflowing correction value to the predetermined maximum output gradation value, and determining, as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value and setting the under flowing correction value to the predetermined minimum output gradation value;

However, Yamashita discloses determining a maximum value (see column 4, line 31) and a minimum value (see column 4, line 54) among correction values (b, g, r) of respective color components obtained for each pixel by using the correction function, calculating differences (Ab, Ag, Ar) between the respective correction values of the respective color components and the minimum value (see column 4, lines 27-28), and calculating a difference (DR) between the maximum value and the minimum value (see column 5, lines 9-12); dividing the calculated differences (Ab, Ag, Ar) between the respective correction values of the respective color components and the minimum value by the calculated difference (DR) between the maximum value and the minimum value, thereby to obtain color ratios (Cb, Cg, Cr) for the respective color components (see column 5, lines 9-12); determining, as an inappropriate pixel, any pixel having a correction value overflowing from a predetermined maximum output gradation value (see column 15, lines 59-63) and setting the overflowing correction value to the predetermined maximum output gradation value, and determining, as an inappropriate pixel, any pixel having a correction value under flowing from a predetermined minimum output gradation value (see column 15, lines 59-63) and setting the under flowing

correction value to the predetermined minimum output gradation value (see column 15, lines 59-63).

Noguchi and Yamashita do not disclose controlling color balance adjustment so as to cause the correction values of the inappropriate pixel to agree with the respective color ratio thereof.

However, Hibi discloses controlling color balance adjustment (see column 1, line 16 and column 6, line 34) so as to cause the correction values of the inappropriate pixel to agree with the respective color ratio thereof.

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Hibi's] color balance adjustment in [Yamashita's and Noguchi's] image color correction device in order to produced high image quality, [Hibi's, column 3, line 6].

5. **Claims 16-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita in view of Hibi as applied to claims 11 and 15 above, and further in view of Tamai (U.S. Patent number 5,949,556).

Regarding claim 16, Yamashita discloses an image processing apparatus for outputting image data consisting of a plurality of image data described in the RGB color system in a predetermined gradation range (see column 4, lines 2-7), the apparatus comprising a conversion section for converting the image data in the RGB color system into a different color system (see column 6, lines 59-61).

Yamashita does not disclose an image quality adjustment section for adjusting image quality of the converted image data; a reverse conversion section for reverse

converting the image quality adjusted image data back into the RGB color system to provide a reverse-converted image data; a judging section for determining whether pixel values of each pixel constituting the reverse-converted image data are confined within the predetermined gradation range; and a color balance adjustment section for performing a predetermined calculation on pixel values of the respective color components included in each pixel determined as being out of the predetermined gradation range by the judging section, thereby to cause the pixel values thereof to be confined within the predetermined gradation range, and adjusting the pixel values of the each pixel to fixedly maintain a ratio among the pixel values of the respective color components based on the minimum value among the pixel values.

However, Tamai discloses an image quality adjustment section for adjusting image quality of the converted image data (see abstract, line 7); a reverse conversion section for reverse converting the image quality adjusted image data back into the RGB color system to provide a reverse-converted image data (see abstract, line 7 and column 7, lines 33-34); a judging section for determining whether pixel values of each pixel constituting the reverse-converted image data are confined within the predetermined gradation range (see column 11, lines 7-11).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Tamai's] image quality adjustment and reverse conversion in [Yamashita's] image color correction device in order to reduced memory capacity, [Yamashita's, column 1, line 27].

Yamashita and Tamai do not disclose a color balance adjustment section for performing a predetermined calculation on pixel values of the respective color components included in each pixel determined as being out of the predetermined gradation range by the judging section, thereby to cause the pixel values thereof to be confined within the predetermined gradation range, and adjusting the pixel values of the each pixel to fixedly maintain a ratio among the pixel values of the respective color components based on the minimum value among the pixel values.

However, Hibi discloses a color balance adjustment section (see column 1, line 16 and column 6, lines 35) for performing a predetermined calculation on pixel values of the respective color components included in each pixel determined as being out of the predetermined gradation range by the judging section, thereby to cause the pixel values thereof to be confined within the predetermined gradation range, and adjusting the pixel values of the each pixel to fixedly maintain a ratio among the pixel values of the respective color components based on the minimum value among the pixel values (see column 1, line 16 and column 6, lines 35).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Hibi's] image quality adjustment and reverse conversion in [Tamai's and Yamashita's] image color correction device in order to reduced memory capacity, [Yamashita's, column 1, line 27].

Regarding claim 17,Hibi discloses the image processing apparatus of claim 16, wherein the color balance adjustment section (see column 1, line 16) is operable to

fixedly maintain an average value of the pixel value of each color component contained in the pixel prior to the adjustment (see column 6, line 35).

Regarding claim 18, Yamashita discloses the image processing apparatus of claim 16, wherein the judging section is operable to determine a maximum pixel value contained in the pixel as overflowing from the predetermined gradation range (see column 7, lines 26-31).

Yamashita does not disclose the color balance adjustment section is operable to cause the maximum pixel value to agree with the maximum value of the predetermined gradation range.

However, Hibi discloses the color balance adjustment section is operable to cause the maximum pixel value to agree with the maximum value of the predetermined gradation range (see column 1, line 16 and column 6, line 35).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Hibi's] color balance adjustment in [Yamashita's] image color correction device in order to produced high image quality, [Hibi's, column 3, line 6].

Regarding claim 19, Yamashita discloses the image processing apparatus of claim 16, wherein the judging section is operable to determine a minimum pixel value contained in the pixel as under flowing from the predetermined gradation range (see column 7, lines 26-31).

Yamashita does not disclose the color balance adjustment section is operable to cause the minimum pixel value to agree with the minimum value of tile predetermined gradation range.

However, Hibi discloses the color balance adjustment section is operable to cause the minimum pixel value to agree with the minimum value of tile predetermined gradation range (see column 1, line 16 and column 6, line 35).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Hibi's] color balance adjustment in [Yamashita's] image color correction device in order to produced high image quality, [Hibi's, column 3, line 6].

Regarding claim 20, Hibi discloses the image processing apparatus of claim 16, wherein the color balance adjustment section (column 1, line 16 and column 6, line 35) is operable to maintain the ratio.

Hibi does not disclose the average value of the pixel value of the pixel for adjustment.

However, Noguchi discloses the average value of the pixel value of the pixel for adjustment (see column 12, lines 45-46).

It would have been obvious to someone of the ordinary skill in the art at the time when the invention was made to use [Noguchi's] average value in [Hibi's] image color correction device in order to produced high image quality, [Hibi's, column 3, line 6].

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aklilu k. Woldemariam whose telephone number is 571-270-3247. The examiner can normally be reached on Monday-Thursday 6:30 a.m-5:00 p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisner can be reached on 571-272-7687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit 2609

A.W.
7/03/2007